



## RESEARCH ARTICLE

# Demographic and media factors affecting women's demand for different types of health insurance: Evidence from a developing country [version 1; peer review: 1 approved]

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## Abstract

**Background:** In the absence of a National Health Insurance Scheme, many Ugandans don't have access to basic health care because of the high cost of attaining this health care. The problem is even worse among women who are faced with higher rates of morbidity and hospitalization. The objective of the study was to assess demographic and media factors affecting the demand for community, employer provided and private health insurance among women in Uganda.

**Methods:** The study used secondary data from the 2016 Uganda Demographic Health Survey, a nationally representative survey. The sample comprised of 18,506 women aged 15-49 years from a population of 20,880 households. Data were analyzed using STATA version 15. Descriptive statistics, Chi square tests and the Firth logistic regression were used to understand the frequency distribution of different types of health insurance, demographic and media factors, associations between different types of health insurance, demographic and media factors and the demographic and media factors affecting the demand for community, employer provided and private health insurance.

**Results:** The results indicated low demand for different types of health insurance among women. Education and wealth were the demographic factors that affected the demand for community and employer provided health insurance while marital status, age and education were demographic factors that affected the demand for community, employer provided and private health insurance respectively. Watching television, reading newspapers and listening to radio were the media factors that affected the demand for employer provided health insurance while listening to radio was the only media factor that affected the demand for community health insurance.

**Conclusions:** There is a need to expedite the National Health Insurance policy to enhance the uptake of health insurance among women in Uganda.

## Open Peer Review

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Any reports and responses or comments on the article can be found at the end of the article.

**Keywords**

Women, health insurance, developing country



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## Introduction

The need for Universal Health Coverage has been continually increasing across the world (Odokonyero, Mwesigye, Adong, & Mbowa, 2017). This has been driven by the third Sustainable Development Goal that advocates for healthy life as well as promoting a decent life for all individuals regardless of their age (Fleming, Wise, Hansen, & Sams, 2017). It is on the basis of this goal that countries are aiming to reduce death of mothers during childbirth, death of children (both infants and adolescents) and ending the spread of diseases like HIV/AIDS, tuberculosis, and malaria. But not all of these health objectives can be achieved by countries because some individuals don't have access to basic health care (Odokonyero *et al.*, 2017).

Absence of Medicaid for individuals and households globally is the major cause of lack of access to quality health care because individuals or household do not have financial protection during periods of illness (Aizawa, 2019; Ssempala, 2018). This is not so different for Uganda, according to Zikusooka *et al.* (2009) the insurance market in Uganda is very small with a few companies providing insurance services. The private sector contributes more to health expenditure in Uganda (82.6%) as compared to the government which contributes only 17.4%. Out of the private expenditure, 65.4 % comes from out-of-pocket payments making it the single largest component of total healthcare expenditure (Sempala, 2018). The absence of national health insurance has left the health insurance sector in Uganda to be dominated by private sector where the services of the private health insurance companies are costly explaining the low demand for different types of Medicaid.

The reliance on direct payments for health care financing amongst households increases catastrophic health expenditures and is often cited by Mulenga *et al.* (2016) as barrier to the achievement of universal health care. The problem is more severe amongst women in countries that are still developing. In underdeveloped countries many women are poor and don't have access to affordable health care, yet they are faced with higher rates of morbidity and hospitalization (RamPrakash & Lingam 2021; Christiani *et al.*, 2017). Despite the fact that countries are encouraged to provide universal health care for their citizens with more attention given to women's specific needs because of gender inequalities, many women in underdeveloped countries do not have any form of Medicaid (RamPrakash & Lingam 2021; Christiani *et al.*, 2017). Data from the 2016 Uganda Demographic Health survey by Uganda Bureau of Statistics & Inner City Fund, (2018) indicates that only one quarter (24%) of Ugandan women between 15-49 years had health insurance.

Several studies (Ssempala, 2018; Mpuuga *et al.*, 2020; Basaza *et al.*, 2007; Nshakira Rukundo *et al.*, 2019) have looked at factors affecting the demand for health insurance, but no study has assessed the effect of demographic and media factors on women's demand for different types of health insurance among women, with a focus on a developing country (in this case, specifically Uganda). This study aims to address this gap by focusing on the following objectives.

- i) To ascertain the impact of demographic factors on women's demand for different types of health insurance
- ii) To investigate the impact of media factors on women's demand for different types of health insurance

These two objectives were answered using the women recode data from the 2016 Uganda Demographic Health Survey (UBOS & ICF, 2018). Results of the study indicated that only 0.44% of women had health insurance provided through community groupings, 0.64% had health insurance provided by their prospective employers while 0.18% privately purchased their own health insurance. The women's chance for demanding community health insurance significantly increased among women whose demographic factors included lack of education, those who attained only primary level of education and those who were either married or divorced. However, coming from the poorest income households reduced the likelihood demand for community health insurance. Similarly, demographic factors like having attained only primary level of education increased the women's chances of acquiring their own private health insurance. For employer provided health insurance, demographic factors like being between 35 to 44 years old increased the likelihood demand for employer provided health insurance though coming from a poorer, middle-income household, having attained only primary or secondary level of education decreased the likelihood demand for employer provided health insurance. Media factors like not listening to radio reduced the likelihood demand for community health insurance among women while the likelihood demand for employer provided health insurance decreased with media factors like not reading newspapers at all and reading newspapers not more than one time a week though it increased with the once a week frequency of listening to radio.

The importance of this paper is treble; it will guide government on how to increase the uptake of health insurance and also be pivotal in the development of a country wide health insurance scheme. Academically, it adds on the existing but scarce literature about the demand for different types of health insurance in Uganda. Future researchers may benefit from such

important literature. Practically, the study provides evidence on what can be based on to choose any type of health insurance in Uganda.

The other parts of this paper are outlined as follows, following the introduction we had the literature review, the methodology, results, discussion and conclusion.

### Literature review

According to [Mulenga \*et al.\* \(2016\)](#), The demand for health insurance is based on the derived demand for health which is explained by the fact that individuals randomly fall ill. Different individuals attach different weights on the costs and effectiveness of several types of health insurance though the motivation for their restricted choice is possibly ideological ([Bourne & Kerr-Campbell, 2010](#)). Following ([RamPrakash & Lingam 2021](#); [Bourne & Kerr-Campbell, 2010](#); [Hopkins & Kidd, 1996](#)) the demand for different types of health insurance is attributed to several demographic and media factors that vary between men and women.

### Demographic determinants for community provided health insurance, employer provided health insurance and privately purchased health insurance

According to [Boateng and Awunyor-Vitor \(2013\)](#), the individual choice for any type of health insurance is influenced by two sets of determinants which are similar in nature though analytically separable. [Boateng and Awunyor-Vitor \(2013\)](#), further state that the nature of the health insurance plan and the personal demographic characteristics like age, marital status, education level, wealth and health status of individuals are important determinants when one is choosing a particular type of health insurance. [Kimani \*et al.\* \(2014\)](#) also points out the increasing role of demographic characteristics in the demand for health insurance among women of demographic characteristics like age, marital status, education level, wealth and health status are important when one is choosing a particular type of health insurance. [Kimani \*et al.\* \(2014\)](#) also argues that demographic factors like income, education, household wealth status, marital status, age, place of residence are important predictors of health insurance amongst women. [Foubister \*et al.\* \(2006\)](#) also concurs that demographic factors like age, gender, income, education and area of residence affect individual subscription to private health insurance. [Foubister \*et al.\* \(2006\)](#) also concurs that demographic factors like age, gender, income, education and area of residence affect individual subscription to private health insurance.

[Mulenga \*et al.\* \(2016\)](#); [Owusu-Sekyere and Chiaraah, A. \(2014\)](#); [Kirigia \*et al.\* \(2005\)](#) further argue that being married, belonging to higher age category, higher level of education, health status had a positive influence on health insurance coverage. [Shaikh, Woodward, Norton, and Jha \(2018\)](#) note that, illiteracy and age greatly affected individual enrollment in community health insurance among nations with high gender inequality levels. This was supported by [RamPrakash and Lingam \(2021\)](#) who revealed that illiteracy, age, marital status, coupled with poor negotiating skills affected the demand for comprehensive health insurance amongst women. [Chakrabarti and Shankar \(2015\)](#) indicated that, tribe, wealth, region and age were important factors in the demand for community based, public and private health insurance schemes. In terms of enrollment and renewal of individual insurance membership [Nshakira-Rukundo \*et al.\* \(2019\)](#) revealed that the amount of wealth an individual had was a key factor in the enrollment and renewal of community health insurance.

### Media related determinants for community provided health insurance, employer provided health insurance and privately purchased health insurance

According to [Gao, Guan & Wang \(2021\)](#), over the years, the role of media in relaying information to society cannot be ignored. Media not only relays information about entertainment, political matters but also relays health related information to society like information about the benefits of having health insurance and the risks of not having health insurance plus the different types of health insurance individuals can explore ([Gao \*et al.\*, 2021](#); [Chakrabarti & Shankar, 2015](#)).

Following [Mathauer \*et al.\* \(2008\)](#) and [Nandi \*et al.\* \(2016\)](#), the lack of information affects the demand of different types of health insurance. According to [Mathauer \*et al.\* \(2008\)](#), limited information not only affects the demand, but it also affects the ability of individuals who are already enrolled on different forms of health insurance schemes to pay.

Focusing on enrolling on each type of health insurance, media plays a more crucial role in private and community health insurance enrollment, and this is more common among individuals in urban areas as compared to those in rural areas ([Chakrabarti & Shankar, 2015](#)). This is supported by [Maradze \*et al.\* \(2020\)](#) who suggests that getting information from different media channels like from television, radio and newspapers informs individuals about the available health insurance plans which eventually leads to utilization of health insurance. Even in areas where the demand for health insurance is low, [Mulenga \*et al.\* \(2016\)](#) indicates that media improved the demand for health insurance amongst women.

This is supported by [Mathuer \*et al.\* \(2008\)](#) who pointed out not listening to radio, not watching television and not reading newspapers were major barriers to enrollment in social health insurance.

## Methods

### Population and source of data

The study used secondary data on women obtained from the 2016 Uganda Demographic and Health Survey collected by [Uganda Bureau of Statistics \(UBOS\) and Inner City Fund \(ICF\) \(2018\)](#). The 2016 Uganda Demographic Health Survey (UDHS) sampling frame was based on the frame of the 2014 Uganda National Population and Housing Census (NPHC) provided by the Uganda Bureau of Statistics (UBOS). The 2014 NPHC census frame was a complete list of all enumeration areas (EAs) whereby each EA covered 130 households and belonged to a sampling frame which had information about the location, residence type and the estimated number of residential areas ([UBOS & ICF, 2018](#)).

Furthermore, according to [UBOS & ICF \(2018\)](#), the 2016 UDHS sample was stratified and selected in two stages. In the first stage, 697 EAs were selected with 162 EAs in urban areas and 535 in rural areas. At the second stage a household list was compiled in each of the 696 accessible EAs from April to October 2016, with some listing overlapping with fieldwork. To minimize household listing, each large EA (one with more than 250 households) was segmented and only one segment, with probability proportional to the segment size, was selected for the survey. [UBOS & ICF \(2018\)](#), further state that in total, a representative sample of 20,880 households (30 from each EA segment) were randomly selected for the 2016 UDHS. Out of the 20,880 selected household, 18,506 women were successfully interviewed and the individual data that was generated from the interviews was used in the study with no exclusion of any interview data, with an average of 1,200 complete interviews carried out per domain. All women aged 15-49 who were either permanent residents of the selected households or visitors who stayed in the household the night before the survey were eligible to be interviewed. For younger women consent to be interviewed was sought from parents or guardians. Information on several demographic, health and media related information were gathered from the participants during interviews. This interview information was used to build datasets whose data formed the basis of the study analysis (see *Underlying data* for information on how to access the associated data).

### Ethics statement

Due to the use of secondary DHS data, no ethical approval was required. However, The DHS Program maintains strict standards for protecting the privacy of respondents and household members in all DHS surveys. An elaborative statement on ethical review, informed and voluntary participation, privacy and confidentiality during data collection and data processing, biomarker referral, treatment, and counselling can be accessed from the DHS website [here](#).

### Measurement of variables

The outcome and independent variables were selected from literature of studies ([Mpuuga \*et al.\* \(2020\)](#); [Ayanore \*et al.\* \(2019\)](#); [Aregbeshola & Khan \(2018\)](#); [Ssempala \(2018\)](#); [Mulenga \*et al.\* \(2016\)](#) and [Kimani \*et al.\* \(2014\)](#)) with focus on determinants of community, employer provided and privately purchased health insurance.

The dependent variable was whether a woman had or didn't have any of community provided health insurance, employer provided health insurance and privately purchased health insurance. The explanatory variables included level of education, wealth, age, health status, residence and marital status which were categorized as demographic factors while the number of times a woman watches television, reads newspapers and listens to radio a week were categorized as media factors.

### Analysis of data

Data was analyzed at three stages using [STATA \(version 15, Stata Corp 2015\)](#). At stage one analysis of the data, a summary of all outcome variables and independent variables was done. Frequencies and percentages were used for the categorical variables. In stage two we looked at the bivariate analysis between the dependent variables and categorical independent variables using Pearson's Chi-square test.

Explanatory variables that had significant associations i.e. at 1%, 5% and 10% level of significance with community, employer provided, and private health insurance were considered for the third stage analysis. At the third stage, the Firth logistic was adopted to identify significant demographic and media determinants for different types of health insurance. Choice of the Firth logistic was based on the fact that it provides better estimates as compared to the normal or ordinary logistic regression while in terms of maximum likelihood estimation the firth logistic uses penalized likelihood to reduce sample bias in maximum likelihood estimation while the normal or ordinary logistic regression suffers from small sample bias ([Okyere \*et al.\*, 2021](#); [Njau, 2019](#)).

## Results

Results of the of the descriptive analysis presented in [Table 1](#) indicate that 0.44 % of women subscribed to community health insurance schemes, 0.64% had health insurance provided by their employers or place of work while 0.18% women privately purchased their own health insurance. This shows that the number of women who are having any type of health insurance is very low and is indeed a rare event. Results of the demographic factors indicated that 21% of the women came from the richest income households, had attained primary level of education (58.86%), were between 15-24 years of age (43.54%), married (31.41%), didn't smoke (99.27%) and lived in rural areas (76.43%). For media factors, (70.51%) of the

**Table 1. Types of health insurance, demographic characteristics and media related characteristics of the respondents.**

Variable	Frequency	Percent
<b>Health insurance type</b>		
<b>Belongs to community health insurance scheme</b>		
No	18,424	99.56
Yes	82	0.44
<b>Has employer provided health insurance</b>		
No	18,388	99.36
Yes	118	0.64
<b>Has private purchased health insurance</b>		
No	18,472	99.82
Yes	34	0.18
<b>Demographic factors</b>		
<b>Women wealth status</b>		
Poorest income household	3,884	20.99
Poorer income household	3,640	19.67
Middle income household	3,485	18.83
Richer income household	3,454	18.66
Richest income household	4,043	21.85
<b>Women level of education</b>		
No education	2,071	11.19
Primary level of education	10,893	58.86
Secondary level of education	4,213	22.77
Higher level of education	1,329	7.18
<b>Age group</b>		
15-24 years	8,058	43.54
25-34 years	5,614	30.34
35-44 years	3,650	19.72
45+ years	1,184	6.40
<b>Women marital status</b>		
Never been married	4,738	25.60
Currently married	5,813	31.41
Currently living with partner	5,566	30.08
Lost partner (widowed)	523	2.83
Currently divorced	139	0.75
Separated no longer living together	1,727	9.33

**Table 1.** *Continued*

Variable	Frequency	Percent
<b>Women health status</b>		
Does not smoke	18,371	99.27
Smokes every day	55	0.30
Smokes somedays	80	0.43
<b>Residence</b>		
Urban area	4,379	23.66
Rural area	14,127	76.34
<b>Media factors</b>		
<b>Frequency of watching television</b>		
Does not watch television at all	13,048	70.51
Watches television less than once a week	1,972	10.66
Watches television at least once a week	3,486	18.84
<b>Frequency of reading newspapers</b>		
Does not read newspapers at all	14,629	79.05
Reads newspapers less than once a week	2,274	12.29
Reads newspapers at least once a week	1,603	8.66
<b>Frequency of listening to radio</b>		
Does not listen to radio not at all	4,974	26.88
Listens to radio less than once a week	2,959	15.99
Listens to radio at least once a week	10,573	57.13

women claimed not to have watched television at all, (79.05%) had never read newspapers while (57.13%) got information from radio at least once a week.

### Bivariate analysis

**Table 2** shows results of the association between women's demand for different types of health insurance and categorical explanatory variables.

#### Bivariate analysis for demographic factors and different types of health insurance

The demographic factors that were associated significantly ( $p \leq 0.05$ ) with community health insurance included wealth, level of education, age and marital status of women. The number of women who had community health insurance were from richer income households (17), had attained primary level of education (46), were between 25-34 years (34) and married (49). Similarly, the demographic factors that were significantly ( $p \leq 0.05$ ) related with employer provided health insurance included wealth, level of education, age and place of residence of women. The number of women respondents whose place of work provided health insurance were from richest income households (101), had higher level of education (82), aged between 25-34 years (53) and where from urban areas (84). However, the wealth of women, women education level, women health status and women place of residence were significantly ( $p \leq 0.05$ ) associated with private health insurance. Women from the richest income households (16), attained higher level of education (17), didn't smoke (33), came from urban (17) and rural (17) areas had private health insurance.

#### Bivariate analysis for media factors and different types of health insurance

The only media factor that was significantly ( $p \leq 0.05$ ) associated with community health insurance was the number of times women listened to the radio. Sixty (60) who women listened to radio at least once a week had community organized health insurance. The number of times women watched television, the number of times women read newspapers and the number of times women listened to radio were significantly ( $p \leq 0.05$ ) related to employer provided health insurance. watching television at least once a week (86), reading newspapers at least once a week (69) and listening to radio at least once a week (86) was common among women who had employer provided health insurance. likewise, the number of times women watched television and read newspapers, was significantly related to possession of private health insurance

**Table 2. Results of associations between health insurance type, demographic factors and media related factors.**

Variable	Community health insurance			Employer provided insurance			Private health insurance					
	No	Yes	Total	No	Yes	Total	No	Yes	Total	P value	Probability value	
<b>Demographic factors</b>												
<b>Women's wealth status</b>												
Poorest Income household	3,881	3	3,884	0.001*	3,882	2	3,884	0.000***	3,882	2	3,884	0.002**
Poorer Income household	3,624	16	3,640		3,639	1	3,640		3,638	2	3,640	
Middle Income household	3,463	22	3,485		3,484	1	3,485		3,479	6	3,485	
Richer Income household	3,430	24	3,454		3,441	13	3,454		3,446	8	3,454	
Richest Income household	4,026	17	4,043		3,942	101	4,043		4,027	16	4,043	
<b>Women's level of Education</b>												
No education	2,054	17	2,071	0.035*	2,071	0	2,071	0.000***	2,070	1	2,071	0.000***
Primary education	10,847	46	10,893		10,888	5	10,893		10,883	10	10,893	
Secondary level education	4,197	16	4,213		4,182	31	4,213		4,197	16	4,213	
Higher level education	1,326	3	1,329		1,247	82	1,329		1,322	17	1,329	
<b>Age group</b>												
15-24 years	8,040	18	8,058	0.001*	8,028	30	8,058	0.000***	8,047	11	8,058	0.442
25-34 years	5,580	34	5,614		5,561	53	5,614		5,600	14	5,614	
35-44 years	3,628	22	3,650		3,617	33	3,650		3,644	6	3,650	
45+ years	1,176	8	1,184		1,182	2	1,184		1,181	3	1,184	
<b>Women's marital status</b>												
Never been married	4,728	10	4,738	0.000***	4,704	34	4,738	0.058	4,730	8	4,738	0.901
Currently married	5,764	49	5,813		5,764	49	5,813		5,802	11	5,813	
Currently living with partner	5,549	17	5,566		5,538	28	5,566		5,554	12	5,566	
Lost partner (widowed)	521	2	523		521	2	523		523	0	523	
Currently divorced	138	1	139		139	0	139		139	0	139	
Separated no longer living together	1,724	3	1,727		1,722	5	1,727		1,724	3	1,727	

**Table 2.** Continued

Variable	Community health insurance			Employer provided insurance			Private health insurance			Probability value
	No	Yes	Total	No	Yes	Total	No	Yes	Total	
<b>Women's health status</b>										
does not smoke	18,289	82	18,371	18,253	118	18,371	18,338	33	18,371	0.017*
smokes every day	55	0	55	55	0	55	54	1	54	
Smokes some days	80	0	80	80	0	80	80	0	80	
<b>Residence</b>										
Urban area	4,367	12	4,379	4,295	84	4,379	4,362	17	4,379	0.000***
Rural area	14,057	70	14,127	14,093	34	14,127	14,110	17	14,127	
<b>Media factors</b>										
<b>Frequency of watching television</b>										
Does not watch television at all	12,995	53	13,048	4,965	9	4,974	13,033	15	13,048	0.000***
Watches television less than once a week	1,961	11	1,972	2,936	23	2,959	1,969	3	1,972	
Watches television at least once a week	3,468	18	3,486	10,487	86	10,573	3,470	16	3,486	
<b>Frequency of reading newspaper</b>										
Does not read newspapers at all	14,563	66	14,629	14,602	27	14,629	14,611	18	14,629	0.001**
Reads newspapers less than once a week	2,264	10	2,274	2,252	22	2,274	2,265	9	2,274	
Reads newspapers at least once a week	1,597	6	1,603	1,534	69	1,603	1,596	7	1,603	
<b>Frequency of listening to radio</b>										
Does not listen to radio at all	4,965	9	4,974	4,965	9	4,974	4,969	5	4,974	0.120
Listens to radio less than once a week	2,946	13	2,959	2,936	23	2,959	2,950	9	2,959	
Listens to radio at least once a week	10,513	60	10,573	10,487	86	10,573	10,553	20	10,573	

\*\*\*Probability < 0.01.

\*\*Probability < 0.05.

\*Probability < 0.1.

among women. watching television at least once a week (16) and not reading newspapers at all (18) was common among women who didn't have private health insurance.

**Multivariate analysis**

Results of the Firth logistic regressions for factors affecting the demand of different types of health insurance are shown in Table 3.

Results in Table 3 indicate the Adjusted Odds Ratios (AOR) of several demographic and media determinants for community provided health insurance, employer provided health insurance and privately purchased health insurance.

**Table 3. Demographic and media factors affecting the demand for different types of health insurance (N=18,506).**

Variables	(1)	(2)	(3)
	Community health insurance	Employer provided health insurance	Private health insurance
<b>Demographic factors</b>			
<b>Education level</b>			
No education	1.856*** (0.634)	-3.966*** (1.484)	-1.219 (1.001)
Primary level of education	0.991* (0.588)	-3.257*** (0.498)	-1.072* (0.578)
Secondary level of education	0.755 (0.600)	-1.397*** (0.227)	-0.127 (0.463)
Higher level of education	Reference category	Reference category	Reference category
<b>Residence</b>			
Urban area		0.203 (0.235)	0.455 (0.446)
Rural area		Reference category	Reference category
<b>Women wealth status</b>			
Poorest income household	-2.053*** (0.619)	-0.701 (0.738)	-0.394 (0.880)
Poorer income household	-0.299 (0.375)	-1.524* (0.883)	-0.419 (0.848)
Middle income household	0.0151 (0.346)	-1.820** (0.871)	0.472 (0.670)
Richer income household	0.181 (0.330)	-0.376 (0.354)	0.440 (0.559)
Richest income household	Reference category	Reference category	Reference category
<b>Age group</b>			
15-24 Years	-0.385 (0.475)	0.284 (0.672)	
25-34 Years	0.292 (0.400)	0.828 (0.660)	
35-44 Years	0.0236 (0.407)	1.324** (0.670)	
Over 45 Years	Reference category	Reference category	
<b>Women marital status</b>			
Never been married	0.547 (0.655)		
Currently married	1.441*** (0.556)		
Currently living with partner	0.464 (0.588)		
Lost partner (widowed)	0.832 (0.839)		
Currently divorced	1.638* (0.983)		
Separated no longer living together	Reference category		
<b>Women health status</b>			
Doesn't smoke			-1.484 (1.436)
Smokes every day			1.985 (1.663)
Smokes some days			Reference category

**Table 3.** *Continued*

Variables	(1)	(2)	(3)
	Community health insurance	Employer provided health insurance	Private health insurance
<b>Media factors</b>			
<b>Frequency of watching television</b>			
Doesn't watch television at all		-0.576* (0.333)	-0.551 (0.522)
Watches television once a week		-0.520 (0.334)	-0.686 (0.632)
Watches television at least once a week		Reference category	Reference category
<b>Frequency of reading newspapers</b>			
Doesn't read newspapers at all		-0.943*** (0.260)	-0.289 (0.504)
Reads newspapers less than once a week		-0.932*** (0.258)	0.165 (0.504)
Reads newspapers at least once a week		Reference category	Reference category
<b>Frequency of listening to radio</b>			
Doesn't listen to radio at all	-0.868** (0.357)	-0.190 (0.359)	
Listens to radio once a week	-0.0205 (0.306)	0.468* (0.252)	
Listens to radio at least once a week	Reference category	Reference category	
Constant	-6.832*** (0.847)	-2.917*** (0.677)	-3.757** (1.536)
Observations	18,506	18,506	18,506

Standard errors in parentheses.

\*\*\*Probability <0.01.

\*\*Probability <0.05.

\*Probability <0.1.

### Demographic determinants for community, employer provided and privately purchased health insurance

Lack of education (AOR= 1.856, se=0.634), attainment of primary level of education (AOR=0.991, se=0.588), being married (AOR=1.441, se=0.556), being divorced (AOR=1.683, se=0.983) significantly ( $p \leq 0.05$ ) increased the likelihood demand of community health insurance among women. However, coming from the poorest income household (AOR= -2.053, se=0.619) significantly decreased the likelihood demand for community health insurance among women.

The results further revealed that, having no education (AOR=-3.966, se=1.484), having attained primary level of education (AOR=-3.257, se=0.498), attained secondary level of education (AOR=-1.397, se=0.227), coming from middle income households (AOR=-1.820, se=0.871), significantly reduced the likelihood demand for employer provided health insurance among women. On the contrary, belonging to the 35-44 years' age category (AOR=1.324, se=0.670) significantly increased the likelihood demand for employer provided health insurance among women. The likelihood demand for private health insurance significantly reduced among women who attained only primary level of education (AOR=-1.072, se=0.578).

### Media related determinants for community, employer provided and privately purchased health insurance

Not listening to radio at all (AOR= -0.868, se=0.357) significantly decreased the likelihood demand for community health insurance among women. Our results also revealed that, not watching television at all (AOR=-0.576, se=0.333), not reading newspapers at all (AOR=-0.943, se=0.260), and reading newspapers less than once a week (AOR=-0.932, se=0.258) significantly reduced the likelihood demand for employer provided health insurance among women. However, listening to radio once a week (AOR=0.468, se=0.252) significantly increased the likelihood demand for employer provided health insurance among women.

### Discussion

Results of the study indicate that only 0.44 % of the women had community health insurance, 0.64% had health insurance that was provided by their places of work while 0.18% of the women privately purchased their own health insurance. This is consistent with the findings of earlier scholars (See Ssempala, 2018; Christiani *et al.*, 2017; Kimani *et al.*, 2014; Aregbeshola & Khan, 2018), who also observed low demand for health insurance amongst women. A possible explanation for this could be the high levels of poverty which is more rampant amongst Ugandan women (UBOS, 2017).

Our findings revealed an important relationship among wealth of women possession of community health insurance, health insurance provided by employers and privately purchased health insurance. Women from richer households had community health insurance while women from richest households had health insurance provided by their respective employers and also privately purchased their own health insurance. This can be attributed to the fact that women from poorest households do not have enough monetary resources and are also anticipated to face challenges in paying back the premium contributions. (Aregbeshola & Khan, 2018). This finding is in agreement with studies like Nshakira – Rukundo *et al.* (2019); Aregbeshola and Khan (2018); Ayanore *et al.* (2019) and Kimani *et al.* (2014) that showed the role played by wealth of individuals as an important predictor in the demand for different types of health insurance.

Similarly, significant relationships are observed between highest level of education and possession of any type of health insurance. Women with only primary level of education had community health insurance while women with higher level of education had health insurance provided by their respective employers but were also in position to purchase their own private health insurance. Such results are in line with Aregbeshola and Khan (2018) who argued that because of education women are in position to make informed choices like purchasing a type of health insurance which suits their needs and they are also aware about the advantages of having health insurance. This points out the increasing role of education in the demand for different types of health insurance as suggested in numerous studies like (see Aregbeshola & Khan, 2018; Kimani *et al.*, 2014; Boateng & Awunyor-Vitor, 2013; Govender *et al.*, 2013).

Our study results also revealed age of women was significantly related to community based health insurance and health insurance provided by the women place of work. Women aged 25 to 34 years had community based health insurance and health insurance provided by the women place of work. The results are consistent with Aregbeshola and Khan (2018) who argued as women grow old their risk of illness also increases but also they are more experienced and have access to finances which are some of the reasons why they may have increased investments in health including enrollment in community based health insurance schemes. Similarly, Ayanore *et al.* (2019), argues that the women willingness to obtain any type of Medicaid is strongly associated with the age of the woman more so if they are in the advanced age category. It is worth noting that women aged 25 to 34 years in Uganda are not in possession of privately purchased health insurance. A possible explanation for this is that most of the available private health insurance offers on the market are expensive and not affordable (Mulenga *et al.*, 2016). Studies like Ayanore *et al.* (2019); Aregbeshola and Khan (2018) and Mulenga *et al.* (2016) present similar results.

In this study an important association is observed among married women and those have health insurance organized at community level. This is so because in most cases this type of health insurance covers your spouse i.e. married women benefit because the health insurance given to their husbands covers them as well. But also on the other hand married men may also convince their wives to enroll for community health insurance because of the benefits of having health insurance. This is consistent with the results of authors like Mulenga *et al.* (2016); Kimani *et al.* (2014) and Boateng and Awunyor-Vitor (2013) who established that the likelihood of having health insurance was high among married couples as compared to the unmarried couples. Given the nature of community health insurance as a health insurance that serves the core needs of community with voluntary membership targeting those outside the formal sector (Mulenga *et al.*, 2016). It is also worth noting that married Ugandan women are not in formal employment which is known to provide health insurance to most individuals employed in the sector as compared to informal employment where most individuals are involved in businesses where the earnings are very few for the purchase private health insurance (Ikoja-Odongo, 2002).

Findings of the study also revealed compelling evidence of an association between women health status and the purchase of private health insurance. Following Yamada *et al.* (2014) a possible explanation for this would be individuals with poor health tend to acquire health insurance as compared to those in good health, this is done to mitigate and care for the side effects of poor health.

It was also established the women place of residence was a momentous determinant of health insurance provided by women's place of work and privately purchased health insurance. Following Aregbeshola and Khan (2018); Mulenga *et al.* (2016), A possible explanation for this is that most women in urban areas are employed in formal sector and private health insurance companies are highly mostly found operating in urban areas than in rural areas. This is in agreement with results of studies like; Aregbeshola and Khan (2018); Ssemphala (2018) and Mulenga *et al.* (2016).

Having no education at all and attaining only primary level of education significantly increased the likelihood demand for community health insurance by Ugandan women. following Odokonyero *et al.* (2017), a possible explanation for this is that community health insurance is that community health insurance is a community based and common in rural areas with a target of providing health insurance to communities which are not in formal employment with low levels of education.

Having no education at all, having attained on primary or secondary level of education significantly decreased the women's likelihood of demanding employer provided health insurance. According to [Ayanore et al. \(2019\)](#) These results present the increasing role of education in the demand employer health insurance and further indicate that acquiring a degree or its equivalent creates opportunities for employment which would translate into enrollment into employer provided health insurance or privately purchasing a health insurance cover. Similarly, having attained only primary level of education significantly reduced women's demand for private health insurance. [Ssempala \(2018\)](#) also argues that lack of education hinders women potential to earn an income thus stopping them from putting some money aside to purchase for health insurance. similar results are reported by authors like ([Ayanore et al., 2019](#); [Ssempala, 2018](#)).

Belonging to poorest income households significantly reduced the women's demand for community based health insurance and enrollment on health insurance provided by the women's place of work. Similarly, coming from middle income households significantly reduced women's demand for employer provided health insurance. According to [Ayanore et al. \(2019\)](#) a possible explanation for this is that women who don't have enough wealth can't afford health insurance and are less likely to enroll for any type of health insurance. A similar argument is put forward by [Mpuuga et al. \(2020\)](#) who argues that rich women are capable of purchasing a health insurance plan given the fact that they have enough resources at their exposure as compared to poor women who are financially constrained. This is in agreement with the findings of ([Ayanore et al., 2019](#); [Ssempla, 2018](#); [Mpuuga et al., 2020](#)).

The possibility of enrolling for employer provided Medicaid was powerful in women aged between 35-45 years. following [Mulenga et al. \(2016\)](#) A possible explanation for this is as one grows older their chances of getting ill are also high thus they need health insurance as protection to the risk of illness. [Ssempla \(2018\)](#) also argues that increase in age and being a female are positively related to enrolling into a health insurance scheme thus elderly household heads and household which are headed by females are more likely to enroll and acquire Medicaid. [Mulenga et al. \(2016\)](#) and [Kimani et al. \(2014\)](#) also agree with these findings.

Similarly, the likelihood demand for community health insurance significantly increased among married and divorced women. According to [Ssempala \(2018\)](#) a possible reason for this is that married individuals may take better care of themselves since they have people that depend on them. This is in agreement with results of [Kirigia et al. \(2005\)](#) however we could not find a plausible explanation as to the likelihood for community health insurance significantly increased among divorced women.

Watching television and reading newspapers was significantly associated with the women demand for employer health insurance and private purchased Medicaid. Also worth noting is that listening to radio was significantly associated with the women's demand for community and employer provided health insurance. A possible explanation for this is that the government of Uganda and other stake holders have informed public about the benefits and of possessing Medicaid through different media outlets like television, newspapers and radio. This finding is in agreement with studies like [Ssempala \(2018\)](#); [Mulenga et al. \(2016\)](#) and [Kimani et al. \(2014\)](#).

Our results also show that the likelihood of demanding for employer provided health insurance decreased with not watching television, not reading newspapers and reading newspapers once a week. Similarly, not listening to radio significantly reduced the likelihood enrollment for community based health insurance amongst women. this is self-explanatory that not reading papers, not watching television and reading newspapers once a week will make women miss out on key information about different types of Medicaid. However, chances of enrolling for employer provided Medicaid significantly increased with listening to radio once a week. Authors like [Nshakira-Rukundo et al. \(2019\)](#) and [Ssempala \(2018\)](#) also agree with these findings.

## Conclusions

The study concludes that enrollment for community provided health insurance, employer provided health insurance and privately purchased health insurance by women is still very low in Uganda. Additionally, demographic factors (wealth, level of education, age, current marital status) and media factors (number of times women watch television, number of times women read newspapers and number of times women listen to radio) were significant predictors in the demand for community provided health insurance, employer provided health insurance and privately purchased health insurance. The findings give an insight into important information that several stakeholders like government and other players like donors should focus on while formulating and implementing health insurance related policies. There is also need to tailor policies aimed at enhancing factors that will promote women's enrollment into different types of Medicaid while working on issues that deter women's enrollment into community provided health insurance, employer provided health insurance and privately purchased health insurance.

## Areas of further study

To understand the demographic and media factors affecting enrollment into community provided health insurance, employer provided health insurance and privately purchased health insurance amongst women from developed and underdeveloped countries, other researchers should undertake a comparative study to this effect. Other than focusing on the demand factors alone, it would be beneficial to also understand demographic and media determinants that affect supply community provided health insurance, employer provided health insurance and privately purchased health insurance.

## Data availability

### Underlying data

Data used in this study are from the women recode dataset of the Uganda 2016 Demographic Health Survey, available from the Demographic and Health Survey (DHS) website <https://dhsprogram.com/data/available-datasets.cfm>. The data was collected by [Uganda Bureau of Statistics \(UBOS\)](#) and [Inner City Fund \(ICF\)](#) (2018). Access to the dataset requires registration and is granted only for legitimate research purposes. A guide for how to apply for dataset access is available at: <https://dhsprogram.com/data/Access-Instruction.cfm>

Once downloaded, the datasets must not be passed on to other researchers without the written consent of The DHS Program. All reports and publications based on the requested data must be sent to The DHS Program Data Archive in a Portable Document Format (pdf).

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The literature cited is relevant to the study and much of it is new which brings out the current perspective of the study. However, the literature in relation to the media is quite scanty and this means the aspect of the media it is not fully explained.

The research design is well explained to cover the overall objective of the study and the choice to integrate the different components of the study was done in a coherent and logical way. The problem of the study is well articulated in the data collection and it comes out well in the analysis of the findings as well as discussion of findings.

The methodology is well presented and detailed enough although the authors should have considered providing a justification for choice of methods selected. The data set selected for data analysis is sufficient to provide a good sample to select a number of variables for review.

The results are statistically significant. The data sources have been clearly provided and the authors have given reference to the other readers where to get it.

The conclusions given are consistent with the findings, however, the absence of the why explanation in the findings produce shallow conclusions. The authors would try to explain the findings of the study for a complete analysis of the findings leading to more specific conclusions.

**Is the work clearly and accurately presented and does it cite the current literature?**

Yes

**Is the study design appropriate and is the work technically sound?**

Yes

**Are sufficient details of methods and analysis provided to allow replication by others?**

Yes

**If applicable, is the statistical analysis and its interpretation appropriate?**

Yes

**Are all the source data underlying the results available to ensure full reproducibility?**

Yes

**Are the conclusions drawn adequately supported by the results?**

Yes

**Competing Interests:** No competing interests were disclosed.

**I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.**

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